



National Toxicology Program
Department of Health and Human Services

NTP Historical Controls Report

By Route and Vehicle

Harlan Sprague-Dawley RATS

November 2017

REPORT DESCRIPTION

This report shows the tumor rates of control group animals from selected studies. The studies used are shown on the Study Summary page.

This report is broken up into sections based on the route and vehicle used to deliver the chemical. The Table of Contents on Page 3 shows the different Route/Vehicle combinations. To see the data from all routes and vehicles combined into one set, you must run the "All Routes" report.

The individual tumor rates shown on the data pages of the report relate to the Study Summary page as follows: the tumor rates are shown in the same order as the Study Summary page, except that they are grouped horizontally in sets of three, with the males in the first set of three and the females in the second set. For example if the study summary showed the studies like this:

Male

M1
M2
M3
M4
M5

Female

F1
F2
F3
F4
F5

the data would be shown as:

Male			Female		
M1	M2	M3	F1	F2	F3
M4	M5		F4	F5	

Directly beneath the individual tumor rates on the data pages are the overall totals for that tumor/site combination. This includes the total tumors/animals, the overall mean (in parentheses), the mean of the study means, and the standard deviation of the study means.

Studies with no control animals of a particular gender are listed on the summary page with the Number of Animals shown as zero and the Start Date and Length of Study shown as "N/A". On the data pages there are blank spaces where tumor rates for these studies would normally be found, so that the male and female rates for the remaining studies can be easily compared.

Table of Contents

Route	Vehicle	Page Number
GAVAGE	CORN OIL	4
INHALATION	AIR	30
PERINATAL AND POSTNATAL	FEED	56
Whole Body Exposure	AIR	82

Version: Nov2017
Contract/Lab: All Laboratories
Species: RATS
Strain: Harlan Sprague-Dawley
Length of Study: CHRONIC

Toxicology Data Management System
Tumor Incidence for Selected Control Animal Groups
Route: GAVAGE
Vehicle: CORN OIL

Page: 4
Report Date: 01/20/2018

Study Summary

Laboratory Name	Study Number	Study Start Date	Length of Study in Days	Number of Animals Total and (#/Cage)	Number Surviving and (Mean Life Span)	Maximum Mean Weekly Body Weight	Chemical
Male							
Battelle Columbus Laboratory	052000603	03/14/07	727	50(3)	20(644)	584.8	Indole-3-carbinol
Female							
Battelle Columbus Laboratory	052000603	03/15/07	729	50(5)	21(637)	353.0	Indole-3-carbinol

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 5
 Report Date: 01/20/2018

	Male				Female			
#All Organs:								
Benign Tumors								
		27/50 (54%)			40/50 (80%)			
Overall Incidence	Total	27/50 (54%)	Mean 54%	SD 0%	Total	40/50 (80%)	Mean 80%	SD 0%
.....								
#All Organs:								
Malignant Tumors								
		12/50 (24%)			14/50 (28%)			
Overall Incidence	Total	12/50 (24%)	Mean 24%	SD 0%	Total	14/50 (28%)	Mean 28%	SD 0%
.....								
#All Organs:								
Malignant and Benign Tumors								
		33/50 (66%)			46/50 (92%)			
Overall Incidence	Total	33/50 (66%)	Mean 66%	SD 0%	Total	46/50 (92%)	Mean 92%	SD 0%
.....								
#All Organs:								
Hemangioma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#All Organs:								
Hemangiosarcoma								
		1/50 (2%)			1/50 (2%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
#All Organs:								
Hemangiosarcoma or Hemangioma								
		1/50 (2%)			1/50 (2%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 6
 Report Date: 01/20/2018

	Male				Female			
#All Organs:								
Histiocytic Sarcoma								
		0/50	(0%)			1/50	(2%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
								Mean 2%
								SD 0%
.....								
#All Organs:								
Leukemia: Granulocytic								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#All Organs:								
Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#All Organs:								
Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#All Organs:								
Malignant Schwannoma								
		2/50	(4%)			2/50	(4%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	2/50	(4%)
								Mean 4%
								SD 0%
.....								
#All Organs:								
Mesothelioma: Benign, Malignant, NOS								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 7
 Report Date: 01/20/2018

	Male				Female			
#All Organs:								
Mesothelioma: Malignant								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
*Adrenal Cortex:								
Adenoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
*Adrenal Cortex:								
Carcinoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
*Adrenal Medulla:								
Pheochromocytoma Benign								
		5/50	(10%)			0/50	(0%)	
Overall Incidence	Total	5/50	(10%)	Mean 10%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
*Adrenal Medulla:								
Pheochromocytoma Complex								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
*Adrenal Medulla:								
Pheochromocytoma Malignant								
		2/50	(4%)			0/50	(0%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 8
 Report Date: 01/20/2018

	Male				Female			
*Adrenal Medulla:								
Pheochromocytoma: Benign, Complex, Malignant, NOS								
		8/50	(16%)			0/50	(0%)	
Overall Incidence	Total	8/50	(16%)	Mean 16%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
*Brain:								
Glioma Malignant								
Overall Incidence								
.....								
*Brain:								
Granular Cell Tumor Benign								
Overall Incidence								
.....								
*Brain:								
Oligodendroglioma, Glioma, or Astrocytoma								
Overall Incidence								
.....								
*Brain:								
Schwannoma Malignant								
Overall Incidence								
.....								
*Clitoral/Preputial Gland:								
Carcinoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 9
 Report Date: 01/20/2018

	Male				Female			
*Clitoral/Preputial Gland:								
 Carcinoma or Adenoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
*Epididymis:								
 Sarcoma								
		0/50	(0%)					
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%			
.....								
#Eye:								
 Leiomyoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
*Heart:								
 Schwannoma Malignant								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Intestine Large: Colon/Rectum:								
 Granular Cell Tumor Benign								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Intestine Large: Colon/Rectum:								
 Leiomyoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 10
 Report Date: 01/20/2018

		Male			Female		
#Intestine Small: Jejunum: Carcinoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
#Intestine Small: Jejunum: Leiomyosarcoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
#Intestine Small: Site Unspecified: Carcinoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
#Intestine Small: Site Unspecified: Carcinoma or Adenoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
#Intestine Small: Site Unspecified: Leiomyosarcoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
*Islets, Pancreatic: Adenoma							
		2/50	(4%)			0/50	(0%)
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50 (0%)
.....							

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 11
 Report Date: 01/20/2018

		Male			Female		
*Islets, Pancreatic:							
 Carcinoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
*Islets, Pancreatic:							
 Carcinoma or Adenoma							
		2/50	(4%)			0/50	(0%)
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50 (0%)
.....							
*Kidney: Pelvis and Transitional Epithelium:							
 Papilloma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
*Kidney: Renal Tubule:							
 Adenoma							
		1/50	(2%)			0/50	(0%)
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50 (0%)
.....							
*Kidney: Renal Tubule:							
 Carcinoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
*Kidney: Renal Tubule:							
 Carcinoma or Adenoma							
		1/50	(2%)			0/50	(0%)
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50 (0%)

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 12
 Report Date: 01/20/2018

		Male			Female		
*Kidney: Renal Tubule:							
Lipoma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
*Kidney: Renal Tubule:							
Oncocytoma Benign							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
*Liver:							
Hepatocellular Adenoma							
		1/50	(2%)		2/50	(4%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	2/50 (4%)
							Mean 4%
							SD 0%
*Liver:							
Hepatocellular Carcinoma or Hepatocellular Adenoma							
		1/50	(2%)		2/50	(4%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	2/50 (4%)
							Mean 4%
							SD 0%
*Liver:							
Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma							
		1/50	(2%)		2/50	(4%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	2/50 (4%)
							Mean 4%
							SD 0%
*Lung:							
Alveolar/Bronchiolar Adenoma							
		0/49	(0%)		1/50	(2%)	
Overall Incidence	Total	0/49	(0%)	Mean 0%	SD 0%	Total	1/50 (2%)
							Mean 2%
							SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 13
 Report Date: 01/20/2018

	Male				Female			
*Lung:								
Alveolar/Bronchiolar Carcinoma								
		0/49	(0%)			0/50	(0%)	
Overall Incidence	Total	0/49	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
*Lung:								
Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma								
		0/49	(0%)			1/50	(2%)	
Overall Incidence	Total	0/49	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
								Mean 2%
								SD 0%
.....								
*Lung:								
Sarcoma								
		0/49	(0%)			1/50	(2%)	
Overall Incidence	Total	0/49	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
								Mean 2%
								SD 0%
.....								
#Lymph Node, Mesenteric:								
Hemangiosarcoma								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Mammary Gland:								
Adenolipoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Mammary Gland:								
Adenoma								
		0/50	(0%)			3/50	(6%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	3/50	(6%)
								Mean 6%
								SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 14
 Report Date: 01/20/2018

		Male				Female			
#Mammary Gland:									
Carcinoma									
		0/50	(0%)			3/50	(6%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	3/50	(6%)	Mean 6%
									SD 0%
.....									
#Mammary Gland:									
Carcinoma or Adenoma									
		0/50	(0%)			6/50	(12%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	6/50	(12%)	Mean 12%
									SD 0%
.....									
#Mammary Gland:									
Fibroadenoma									
		1/50	(2%)			29/50	(58%)		
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	29/50	(58%)	Mean 58%
									SD 0%
.....									
#Mammary Gland:									
Fibroma, Fibroadenoma or Adenoma									
		1/50	(2%)			30/50	(60%)		
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	30/50	(60%)	Mean 60%
									SD 0%
.....									
#Mammary Gland:									
Fibroma, Fibroadenoma, Carcinoma, or Adenoma									
		1/50	(2%)			32/50	(64%)		
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	32/50	(64%)	Mean 64%
									SD 0%
.....									
#Mammary Gland:									
Myoepithelioma									
		0/50	(0%)			1/50	(2%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)	Mean 2%
									SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 15
 Report Date: 01/20/2018

	Male				Female			
#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma								
		1/50 (2%)			0/50 (0%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma								
		1/50 (2%)			0/50 (0%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Oral Mucosa: Squamous Cell Carcinoma								
		1/50 (2%)			0/50 (0%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Ovary: Cystadenoma								
					0/50 (0%)			
Overall Incidence					Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Ovary: Granulosa Cell Tumor Benign								
					0/50 (0%)			
Overall Incidence					Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Ovary: Granulosa Cell Tumor Malignant								
					0/50 (0%)			
Overall Incidence					Total	0/50 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 16
 Report Date: 01/20/2018

Male				Female					
*Ovary:									
Granulosa Cell Tumor: Benign, Malignant, NOS									
				0/50	(0%)				
Overall Incidence	Total			0/50	(0%)	Mean 0%	SD 0%		
.....									
*Ovary:									
Granulosa-Theca Tumor Benign									
				1/50	(2%)				
Overall Incidence	Total			1/50	(2%)	Mean 2%	SD 0%		
.....									
*Ovary:									
Sertoli Cell Tumor Benign									
				0/50	(0%)				
Overall Incidence	Total			0/50	(0%)	Mean 0%	SD 0%		
.....									
*Ovary:									
Thecoma Benign									
				0/50	(0%)				
Overall Incidence	Total			0/50	(0%)	Mean 0%	SD 0%		
.....									
*Ovary:									
Tubulostromal Carcinoma									
				1/50	(2%)				
Overall Incidence	Total			1/50	(2%)	Mean 2%	SD 0%		
.....									
*Pancreas:									
Adenoma									
		5/50	(10%)						
Overall Incidence	Total	5/50	(10%)	Mean 10%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....									

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 17
 Report Date: 01/20/2018

		Male			Female		
*Pancreas:							
Carcinoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Pancreas:							
Carcinoma or Adenoma							
		5/50 (10%)			0/50 (0%)		
Overall Incidence	Total	5/50 (10%)	Mean 10%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Parathyroid Gland:							
Adenoma							
		0/43 (0%)			0/47 (0%)		
Overall Incidence	Total	0/43 (0%)	Mean 0%	SD 0%	Total	0/47 (0%)	Mean 0% SD 0%
.....							
*Pituitary Gland: Pars Distalis or Unspecified Site:							
Adenoma							
		5/50 (10%)			18/50 (36%)		
Overall Incidence	Total	5/50 (10%)	Mean 10%	SD 0%	Total	18/50 (36%)	Mean 36% SD 0%
.....							
*Pituitary Gland: Pars Distalis or Unspecified Site:							
Carcinoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Pituitary Gland: Pars Distalis or Unspecified Site:							
Carcinoma or Adenoma							
		5/50 (10%)			18/50 (36%)		
Overall Incidence	Total	5/50 (10%)	Mean 10%	SD 0%	Total	18/50 (36%)	Mean 36% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 18
 Report Date: 01/20/2018

		Male			Female		
*Pituitary Gland: Pars Intermedia:							
Adenoma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
*Pituitary Gland: Pars Intermedia:							
Carcinoma or Adenoma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
*Prostate:							
Adenoma							
		0/50	(0%)				
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%		
.....							
*Prostate:							
Carcinoma or Adenoma							
		0/50	(0%)				
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%		
.....							
*Salivary Glands:							
Schwannoma Malignant							
		1/50	(2%)		0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
#Skeletal Muscle:							
Liposarcoma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 19
 Report Date: 01/20/2018

	Male				Female			
#Skeletal Muscle:								
Sarcoma								
		0/50	(0%)			1/50	(2%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
							Mean 2%	SD 0%
.....								
#Skin:								
Basal Cell Adenoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Basal Cell Adenoma or Basosquamous Tumor Benign								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Basal Cell Adenoma, Basosquamous Tumor Benign, or Trichoepithelioma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Basal Cell Carcinoma								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Basal Cell Carcinoma or Basosquamous Tumor (malignant or NOS)								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 20
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma								
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepithelioma								
Overall Incidence	Total	6/50 (12%)	Mean 12%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Fibroma								
Overall Incidence	Total	5/50 (10%)	Mean 10%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
#Skin:								
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, Malignant Fibrous Histiocytoma, or Hemangiopericytoma								
Overall Incidence	Total	7/50 (14%)	Mean 14%	SD 0%	Total	2/50 (4%)	Mean 4%	SD 0%
.....								
#Skin:								
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Malignant Fibrous Histiocytoma								
Overall Incidence	Total	7/50 (14%)	Mean 14%	SD 0%	Total	2/50 (4%)	Mean 4%	SD 0%
.....								
#Skin:								
Fibrosarcoma								
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 21
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Fibrosarcoma, Sarcoma, Myxosarcoma, or Malignant Fibrous Histiocytoma								
		2/50	(4%)			1/50	(2%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	1/50	(2%)
							Mean 2%	SD 0%
.....								
#Skin:								
Hemangioma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Hemangiosarcoma								
		0/50	(0%)			1/50	(2%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
							Mean 2%	SD 0%
.....								
#Skin:								
Keratoacanthoma								
		4/50	(8%)			0/50	(0%)	
Overall Incidence	Total	4/50	(8%)	Mean 8%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Lipoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Malignant Fibrous Histiocytoma								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 22
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Neurofibrosarcoma or Schwannoma (malignant or NOS)								
		0/50 (0%)			1/50 (2%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
#Skin:								
Neurofibrosarcoma, Neurofibroma, or Schwannoma (benign, malignant or NOS)								
		0/50 (0%)			1/50 (2%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
#Skin:								
Sarcoma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Schwannoma Malignant								
		0/50 (0%)			1/50 (2%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
#Skin:								
Squamous Cell Carcinoma								
		1/50 (2%)			0/50 (0%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Squamous Cell Carcinoma, Basal Cell Carcinoma, Basosquamous Tumor (malignant or NOS), or Carcinoma								
		2/50 (4%)			0/50 (0%)			
Overall Incidence	Total	2/50 (4%)	Mean 4%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 23
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Squamous Cell Papilloma								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Squamous Cell Papilloma or Papilloma								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma								
		5/50	(10%)			0/50	(0%)	
Overall Incidence	Total	5/50	(10%)	Mean 10%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Squamous Cell Papilloma, Papilloma, or Keratoacanthoma								
		5/50	(10%)			0/50	(0%)	
Overall Incidence	Total	5/50	(10%)	Mean 10%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin: Sebaceous Gland:								
Adenoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin: Sebaceous Gland:								
Carcinoma or Adenoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 24
 Report Date: 01/20/2018

		Male			Female		
*Spleen:							
Hemangiosarcoma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
#Stomach, Forestomach:							
Sarcoma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
#Stomach, Forestomach:							
Squamous Cell Carcinoma							
		1/50	(2%)		1/50	(2%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	1/50 (2%)
.....							
#Stomach, Forestomach:							
Squamous Cell Carcinoma or Papilloma Squamous							
		1/50	(2%)		1/50	(2%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	1/50 (2%)
.....							
#Stomach, Forestomach:							
Squamous Cell Papilloma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
*Testis:							
Adenoma							
		3/49	(6%)				
Overall Incidence	Total	3/49	(6.12%)	Mean 6.12%	SD 0%		

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 25
 Report Date: 01/20/2018

		Male			Female		
*Thymus:							
Thymoma Benign							
		1/46	(2%)		0/47	(0%)	
Overall Incidence	Total	1/46	(2.17%)	Mean 2.17%	SD 0%	Total	0/47 (0%)
						Mean 0%	SD 0%
.....							
*Thymus:							
Thymoma Malignant							
		0/46	(0%)		0/47	(0%)	
Overall Incidence	Total	0/46	(0%)	Mean 0%	SD 0%	Total	0/47 (0%)
						Mean 0%	SD 0%
.....							
*Thymus:							
Thymoma: Benign, Malignant, NOS							
		1/46	(2%)		0/47	(0%)	
Overall Incidence	Total	1/46	(2.17%)	Mean 2.17%	SD 0%	Total	0/47 (0%)
						Mean 0%	SD 0%
.....							
*Thyroid Gland: C-Cell:							
Adenoma							
		13/50	(26%)		11/49	(22%)	
Overall Incidence	Total	13/50	(26%)	Mean 26%	SD 0%	Total	11/49 (22.45%)
						Mean 22.45%	SD 0%
.....							
*Thyroid Gland: C-Cell:							
Carcinoma							
		0/50	(0%)		0/49	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/49 (0%)
						Mean 0%	SD 0%
.....							
*Thyroid Gland: C-Cell:							
Carcinoma or Adenoma							
		13/50	(26%)		11/49	(22%)	
Overall Incidence	Total	13/50	(26%)	Mean 26%	SD 0%	Total	11/49 (22.45%)
						Mean 22.45%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 26
 Report Date: 01/20/2018

		Male			Female		
*Thyroid Gland: Follicular Cell: Carcinoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/49 (0%)	Mean 0% SD 0%
.....							
*Thyroid Gland: Follicular Cell: Carcinoma or Adenoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/49 (0%)	Mean 0% SD 0%
.....							
#Tissue NOS: Schwannoma Malignant							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tongue: Squamous Cell Carcinoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tongue: Squamous Cell Carcinoma or Papilloma Squamous							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tooth: Odontoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 27
 Report Date: 01/20/2018

	Male				Female			
*Urinary Bladder:								
Leiomyosarcoma								
		0/50	(0%)			0/49	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/49	(0%)
.....								
#Uterus:								
Carcinoma								
						0/50	(0%)	
Overall Incidence						Total	0/50	(0%)
.....								
#Uterus:								
Hemangiosarcoma								
						0/50	(0%)	
Overall Incidence						Total	0/50	(0%)
.....								
#Uterus:								
Leiomyosarcoma								
						0/50	(0%)	
Overall Incidence						Total	0/50	(0%)
.....								
#Uterus:								
Polyp Stromal								
						10/50	(20%)	
Overall Incidence						Total	10/50	(20%)
.....								
#Uterus:								
Sarcoma Stromal								
						2/50	(4%)	
Overall Incidence						Total	2/50	(4%)
.....								

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 28
 Report Date: 01/20/2018

	Male	Female
#Uterus:		
Sarcoma Stromal or Polyp Stromal		
Overall Incidence	Total 12/50 (24%)	Mean 24% SD 0%
#Uterus:		
Schwannoma Malignant		
Overall Incidence	Total 0/50 (0%)	Mean 0% SD 0%
#Uterus:		
Squamous Cell Carcinoma		
Overall Incidence	Total 0/50 (0%)	Mean 0% SD 0%
#Vagina:		
Granular Cell Tumor Benign		
Overall Incidence	Total 0/50 (0%)	Mean 0% SD 0%
#Vagina:		
Polyp		
Overall Incidence	Total 1/50 (2%)	Mean 2% SD 0%
#Vagina:		
Schwannoma Malignant		
Overall Incidence	Total 1/50 (2%)	Mean 2% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: GAVAGE
 Vehicle: CORN OIL

Page: 29
 Report Date: 01/20/2018

		Male				Female			
#Zymbal's Gland:									
Carcinoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Zymbal's Gland:									
Carcinoma or Adenoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
Contract/Lab: All Laboratories
Species: RATS
Strain: Harlan Sprague-Dawley
Length of Study: CHRONIC

Toxicology Data Management System
Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 30
Report Date: 01/20/2018

Study Summary

Laboratory Name	Study Number	Study Start Date	Length of Study in Days	Number of Animals Total and (#/Cage)	Number Surviving and (Mean Life Span)	Maximum Mean Weekly Body Weight	Chemical
Male							
Battelle Northwest	051047203	01/17/11	729	50(5)	25(661)	609.4	p-Chloro-a,a,a-trifluorotoluene
Female							
Battelle Northwest	051047203	01/17/11	731	50(5)	22(626)	377.3	p-Chloro-a,a,a-trifluorotoluene

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 31
 Report Date: 01/20/2018

		Male			Female		
#All Organs:							
Benign Tumors							
		30/50 (60%)			39/50 (78%)		
Overall Incidence	Total	30/50 (60%)	Mean 60%	SD 0%	Total	39/50 (78%)	Mean 78% SD 0%
.....							
#All Organs:							
Malignant Tumors							
		12/50 (24%)			11/50 (22%)		
Overall Incidence	Total	12/50 (24%)	Mean 24%	SD 0%	Total	11/50 (22%)	Mean 22% SD 0%
.....							
#All Organs:							
Malignant and Benign Tumors							
		37/50 (74%)			41/50 (82%)		
Overall Incidence	Total	37/50 (74%)	Mean 74%	SD 0%	Total	41/50 (82%)	Mean 82% SD 0%
.....							
#All Organs:							
Hemangioma							
		1/50 (2%)			0/50 (0%)		
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#All Organs:							
Hemangiosarcoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#All Organs:							
Hemangiosarcoma or Hemangioma							
		1/50 (2%)			0/50 (0%)		
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 32
 Report Date: 01/20/2018

		Male			Female		
#All Organs:							
Histiocytic Sarcoma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
.....							
#All Organs:							
Leukemia: Granulocytic							
		1/50	(2%)		0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
.....							
#All Organs:							
Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated							
		3/50	(6%)		0/50	(0%)	
Overall Incidence	Total	3/50	(6%)	Mean 6%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
.....							
#All Organs:							
Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
.....							
#All Organs:							
Malignant Schwannoma							
		0/50	(0%)		2/50	(4%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	2/50 (4%)
							Mean 4%
							SD 0%
.....							
#All Organs:							
Mesothelioma: Benign, Malignant, NOS							
		1/50	(2%)		0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 33
 Report Date: 01/20/2018

	Male				Female			
#All Organs:								
Mesothelioma: Malignant								
		1/50 (2%)			0/50 (0%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Adrenal Cortex:								
Adenoma								
		3/50 (6%)			0/50 (0%)			
Overall Incidence	Total	3/50 (6%)	Mean 6%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Adrenal Cortex:								
Carcinoma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Adrenal Medulla:								
Pheochromocytoma Benign								
		12/50 (24%)			0/49 (0%)			
Overall Incidence	Total	12/50 (24%)	Mean 24%	SD 0%	Total	0/49 (0%)	Mean 0%	SD 0%
.....								
*Adrenal Medulla:								
Pheochromocytoma Complex								
		0/50 (0%)			0/49 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/49 (0%)	Mean 0%	SD 0%
.....								
*Adrenal Medulla:								
Pheochromocytoma Malignant								
		2/50 (4%)			0/49 (0%)			
Overall Incidence	Total	2/50 (4%)	Mean 4%	SD 0%	Total	0/49 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 34
 Report Date: 01/20/2018

	Male				Female			
*Adrenal Medulla:								
Pheochromocytoma: Benign, Complex, Malignant, NOS								
		14/50 (28%)			0/49 (0%)			
Overall Incidence	Total	14/50 (28%)	Mean 28%	SD 0%	Total	0/49 (0%)	Mean 0%	SD 0%
.....								
*Brain:								
Glioma Malignant								
		2/50 (4%)			1/50 (2%)			
Overall Incidence	Total	2/50 (4%)	Mean 4%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
*Brain:								
Granular Cell Tumor Benign								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Brain:								
Oligodendroglioma, Glioma, or Astrocytoma								
		2/50 (4%)			1/50 (2%)			
Overall Incidence	Total	2/50 (4%)	Mean 4%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
*Brain:								
Schwannoma Malignant								
		0/50 (0%)			1/50 (2%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
*Clitoral/Preputial Gland:								
Carcinoma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 35
 Report Date: 01/20/2018

		Male			Female		
*Clitoral/Preputial Gland: Carcinoma or Adenoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Epididymis: Sarcoma							
		1/50 (2%)					
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%			
.....							
#Eye: Leiomyoma							
		1/50 (2%)			0/50 (0%)		
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Heart: Schwannoma Malignant							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Intestine Large: Colon/Rectum: Granular Cell Tumor Benign							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Intestine Large: Colon/Rectum: Leiomyoma							
		1/50 (2%)			0/50 (0%)		
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 36
 Report Date: 01/20/2018

		Male			Female		
#Intestine Small: Jejunum: Carcinoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Intestine Small: Jejunum: Leiomyosarcoma							
		1/50 (2%)			0/50 (0%)		
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Intestine Small: Site Unspecified: Carcinoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Intestine Small: Site Unspecified: Carcinoma or Adenoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Intestine Small: Site Unspecified: Leiomyosarcoma							
		1/50 (2%)			0/50 (0%)		
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Islets, Pancreatic: Adenoma							
		8/50 (16%)			1/50 (2%)		
Overall Incidence	Total	8/50 (16%)	Mean 16%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 37
 Report Date: 01/20/2018

		Male			Female		
*Islets, Pancreatic:							
Carcinoma							
		0/50 (0%)			1/50 (2%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
*Islets, Pancreatic:							
Carcinoma or Adenoma							
		8/50 (16%)			2/50 (4%)		
Overall Incidence	Total	8/50 (16%)	Mean 16%	SD 0%	Total	2/50 (4%)	Mean 4% SD 0%
.....							
*Kidney: Pelvis and Transitional Epithelium:							
Papilloma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Kidney: Renal Tubule:							
Adenoma							
		0/50 (0%)			1/50 (2%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
*Kidney: Renal Tubule:							
Carcinoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Kidney: Renal Tubule:							
Carcinoma or Adenoma							
		0/50 (0%)			1/50 (2%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 38
 Report Date: 01/20/2018

		Male				Female			
*Kidney: Renal Tubule:									
Lipoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Kidney: Renal Tubule:									
Oncocytoma Benign									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Liver:									
Hepatocellular Adenoma									
		0/50	(0%)			2/50	(4%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	2/50	(4%)	Mean 4% SD 0%
.....									
*Liver:									
Hepatocellular Carcinoma or Hepatocellular Adenoma									
		0/50	(0%)			2/50	(4%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	2/50	(4%)	Mean 4% SD 0%
.....									
*Liver:									
Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma									
		0/50	(0%)			2/50	(4%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	2/50	(4%)	Mean 4% SD 0%
.....									
*Lung:									
Alveolar/Bronchiolar Adenoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 39
 Report Date: 01/20/2018

		Male				Female			
*Lung:									
Alveolar/Bronchiolar Carcinoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Lung:									
Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Lung:									
Sarcoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Lymph Node, Mesenteric:									
Hemangiosarcoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Mammary Gland:									
Adenolipoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Mammary Gland:									
Adenoma									
		0/50	(0%)			4/50	(8%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	4/50	(8%)	Mean 8% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 40
 Report Date: 01/20/2018

		Male			Female			
#Mammary Gland:								
Carcinoma								
		0/50	(0%)			5/50	(10%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	5/50 (10%)	Mean 10%
								SD 0%
.....								
#Mammary Gland:								
Carcinoma or Adenoma								
		0/50	(0%)			9/50	(18%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	9/50 (18%)	Mean 18%
								SD 0%
.....								
#Mammary Gland:								
Fibroadenoma								
		2/50	(4%)			20/50	(40%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	20/50 (40%)	Mean 40%
								SD 0%
.....								
#Mammary Gland:								
Fibroma, Fibroadenoma or Adenoma								
		2/50	(4%)			23/50	(46%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	23/50 (46%)	Mean 46%
								SD 0%
.....								
#Mammary Gland:								
Fibroma, Fibroadenoma, Carcinoma, or Adenoma								
		2/50	(4%)			27/50	(54%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	27/50 (54%)	Mean 54%
								SD 0%
.....								
#Mammary Gland:								
Myoepithelioma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%
								SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 41
 Report Date: 01/20/2018

	Male				Female			
#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma								
		0/50 (0%)				0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma								
		0/50 (0%)				0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Oral Mucosa: Squamous Cell Carcinoma								
		0/50 (0%)				0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Ovary: Cystadenoma								
						0/50 (0%)		
Overall Incidence					Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Ovary: Granulosa Cell Tumor Benign								
						3/50 (6%)		
Overall Incidence					Total	3/50 (6%)	Mean 6%	SD 0%
.....								
*Ovary: Granulosa Cell Tumor Malignant								
						0/50 (0%)		
Overall Incidence					Total	0/50 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: INHALATION
 Vehicle: AIR

Page: 42
 Report Date: 01/20/2018

				Male					Female				
*Ovary:													
Granulosa Cell Tumor: Benign, Malignant, NOS													
						3/50	(6%)						
Overall Incidence				Total	3/50	(6%)		Mean 6%	SD 0%				
.....													
*Ovary:													
Granulosa-Theca Tumor Benign													
						0/50	(0%)						
Overall Incidence				Total	0/50	(0%)		Mean 0%	SD 0%				
.....													
*Ovary:													
Sertoli Cell Tumor Benign													
						0/50	(0%)						
Overall Incidence				Total	0/50	(0%)		Mean 0%	SD 0%				
.....													
*Ovary:													
Thecoma Benign													
						1/50	(2%)						
Overall Incidence				Total	1/50	(2%)		Mean 2%	SD 0%				
.....													
*Ovary:													
Tubulostromal Carcinoma													
						0/50	(0%)						
Overall Incidence				Total	0/50	(0%)		Mean 0%	SD 0%				
.....													
*Pancreas:													
Adenoma													
					0/50	(0%)							
Overall Incidence				Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0%	SD 0%
.....													

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 43
 Report Date: 01/20/2018

		Male			Female		
*Pancreas:							
Carcinoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Pancreas:							
Carcinoma or Adenoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Parathyroid Gland:							
Adenoma							
		0/48 (0%)			0/45 (0%)		
Overall Incidence	Total	0/48 (0%)	Mean 0%	SD 0%	Total	0/45 (0%)	Mean 0% SD 0%
.....							
*Pituitary Gland: Pars Distalis or Unspecified Site:							
Adenoma							
		11/50 (22%)			18/50 (36%)		
Overall Incidence	Total	11/50 (22%)	Mean 22%	SD 0%	Total	18/50 (36%)	Mean 36% SD 0%
.....							
*Pituitary Gland: Pars Distalis or Unspecified Site:							
Carcinoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Pituitary Gland: Pars Distalis or Unspecified Site:							
Carcinoma or Adenoma							
		11/50 (22%)			18/50 (36%)		
Overall Incidence	Total	11/50 (22%)	Mean 22%	SD 0%	Total	18/50 (36%)	Mean 36% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 44
 Report Date: 01/20/2018

		Male				Female			
*Pituitary Gland: Pars Intermedia:									
Adenoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Pituitary Gland: Pars Intermedia:									
Carcinoma or Adenoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Prostate:									
Adenoma									
		0/50	(0%)						
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%				
.....									
*Prostate:									
Carcinoma or Adenoma									
		0/50	(0%)						
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%				
.....									
*Salivary Glands:									
Schwannoma Malignant									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Skeletal Muscle:									
Liposarcoma									
		0/50	(0%)			1/50	(2%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)	Mean 2% SD 0%
.....									
*: Denominator is number of animals with tissues examined microscopically									
#: Denominator is number of animals necropsied									

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 45
 Report Date: 01/20/2018

		Male				Female			
#Skeletal Muscle:									
Sarcoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Skin:									
Basal Cell Adenoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Skin:									
Basal Cell Adenoma or Basosquamous Tumor Benign									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Skin:									
Basal Cell Adenoma, Basosquamous Tumor Benign, or Trichoepithelioma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Skin:									
Basal Cell Carcinoma									
		0/50	(0%)			1/50	(2%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)	Mean 2% SD 0%
.....									
#Skin:									
Basal Cell Carcinoma or Basosquamous Tumor (malignant or NOS)									
		0/50	(0%)			1/50	(2%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)	Mean 2% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 46
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma								
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
#Skin:								
Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepithelioma								
Overall Incidence	Total	4/50 (8%)	Mean 8%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
#Skin:								
Fibroma								
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, Malignant Fibrous Histiocytoma, or Hemangiopericytoma								
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Malignant Fibrous Histiocytoma								
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Fibrosarcoma								
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: INHALATION
 Vehicle: AIR

Page: 48
 Report Date: 01/20/2018

Male					Female			
#Skin:								
Neurofibrosarcoma or Schwannoma (malignant or NOS)								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Neurofibrosarcoma, Neurofibroma, or Schwannoma (benign, malignant or NOS)								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Sarcoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Schwannoma Malignant								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Squamous Cell Carcinoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Squamous Cell Carcinoma, Basal Cell Carcinoma, Basosquamous Tumor (malignant or NOS), or Carcinoma								
		0/50	(0%)			1/50	(2%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
.....								

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 49
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Squamous Cell Papilloma								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Squamous Cell Papilloma or Papilloma								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma								
		4/50	(8%)			0/50	(0%)	
Overall Incidence	Total	4/50	(8%)	Mean 8%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin:								
Squamous Cell Papilloma, Papilloma, or Keratoacanthoma								
		4/50	(8%)			0/50	(0%)	
Overall Incidence	Total	4/50	(8%)	Mean 8%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin: Sebaceous Gland:								
Adenoma								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
#Skin: Sebaceous Gland:								
Carcinoma or Adenoma								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: INHALATION
 Vehicle: AIR

Page: 50
 Report Date: 01/20/2018

		Male				Female			
*Spleen:									
Hemangiosarcoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Stomach, Forestomach:									
Sarcoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Stomach, Forestomach:									
Squamous Cell Carcinoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Stomach, Forestomach:									
Squamous Cell Carcinoma or Papilloma Squamous									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Stomach, Forestomach:									
Squamous Cell Papilloma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Testis:									
Adenoma									
		0/50	(0%)						
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%				

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 51
 Report Date: 01/20/2018

		Male			Female		
*Thymus:							
Thymoma Benign							
		0/48	(0%)		0/50	(0%)	
Overall Incidence	Total	0/48	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
*Thymus:							
Thymoma Malignant							
		0/48	(0%)		0/50	(0%)	
Overall Incidence	Total	0/48	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
*Thymus:							
Thymoma: Benign, Malignant, NOS							
		0/48	(0%)		0/50	(0%)	
Overall Incidence	Total	0/48	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
*Thyroid Gland: C-Cell:							
Adenoma							
		2/50	(4%)		2/50	(4%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	2/50 (4%)
						Mean 4%	SD 0%
.....							
*Thyroid Gland: C-Cell:							
Carcinoma							
		1/50	(2%)		0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
*Thyroid Gland: C-Cell:							
Carcinoma or Adenoma							
		3/50	(6%)		2/50	(4%)	
Overall Incidence	Total	3/50	(6%)	Mean 6%	SD 0%	Total	2/50 (4%)
						Mean 4%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 52
 Report Date: 01/20/2018

		Male			Female		
*Thyroid Gland: Follicular Cell: Carcinoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Thyroid Gland: Follicular Cell: Carcinoma or Adenoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tissue NOS: Schwannoma Malignant							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tongue: Squamous Cell Carcinoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tongue: Squamous Cell Carcinoma or Papilloma Squamous							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tooth: Odontoma							
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 53
 Report Date: 01/20/2018

	Male				Female			
*Urinary Bladder:								
Leiomyosarcoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Uterus:								
Carcinoma								
						1/50	(2%)	
Overall Incidence						Total	1/50	(2%)
.....								
#Uterus:								
Hemangiosarcoma								
						0/50	(0%)	
Overall Incidence						Total	0/50	(0%)
.....								
#Uterus:								
Leiomyosarcoma								
						0/50	(0%)	
Overall Incidence						Total	0/50	(0%)
.....								
#Uterus:								
Polyp Stromal								
						7/50	(14%)	
Overall Incidence						Total	7/50	(14%)
.....								
#Uterus:								
Sarcoma Stromal								
						0/50	(0%)	
Overall Incidence						Total	0/50	(0%)
.....								

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
Route: INHALATION
Vehicle: AIR

Page: 54
 Report Date: 01/20/2018

	Male	Female
#Uterus:		
Sarcoma Stromal or Polyp Stromal		
Overall Incidence	Total	7/50 (14%) Mean 14% SD 0%
.....		
#Uterus:		
Schwannoma Malignant		
Overall Incidence	Total	0/50 (0%) Mean 0% SD 0%
.....		
#Uterus:		
Squamous Cell Carcinoma		
Overall Incidence	Total	1/50 (2%) Mean 2% SD 0%
.....		
#Vagina:		
Granular Cell Tumor Benign		
Overall Incidence	Total	1/50 (2%) Mean 2% SD 0%
.....		
#Vagina:		
Polyp		
Overall Incidence	Total	0/50 (0%) Mean 0% SD 0%
.....		
#Vagina:		
Schwannoma Malignant		
Overall Incidence	Total	1/50 (2%) Mean 2% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: INHALATION
 Vehicle: AIR

Page: 55
 Report Date: 01/20/2018

Male					Female				
#Zymbal's Gland:									
Carcinoma									
		1/50	(2%)			0/50	(0%)		
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
#Zymbal's Gland:									
Carcinoma or Adenoma									
		1/50	(2%)			0/50	(0%)		
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
Contract/Lab: All Laboratories
Species: RATS
Strain: Harlan Sprague-Dawley
Length of Study: CHRONIC

Toxicology Data Management System
Tumor Incidence for Selected Control Animal Groups
Route: PERINATAL AND POSTNATAL
Vehicle: FEED

Page: 56
Report Date: 01/20/2018

Study Summary

Laboratory Name	Study Number	Study Start Date	Length of Study in Days	Number of Animals Total and (#/Cage)	Number Surviving and (Mean Life Span)	Maximum Mean Weekly Body Weight	Chemical
Male							
Battelle Columbus Laboratory	051026001	11/08/10	729	50(2)	30(706)	615.3	2-Hydroxy-4-methoxybenzophenone
Female							
Battelle Columbus Laboratory	051026001	11/09/10	730	50(4)	30(657)	379.6	2-Hydroxy-4-methoxybenzophenone

NOTE: The text on page 2 ("Report Description") describes how the studies listed here are displayed on the data pages that follow.

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 57
 Report Date: 01/20/2018

		Male			Female		
#All Organs:							
Benign Tumors							
		38/50 (76%)			41/50 (82%)		
Overall Incidence	Total	38/50 (76%)	Mean 76%	SD 0%	Total	41/50 (82%)	Mean 82% SD 0%
.....							
#All Organs:							
Malignant Tumors							
		11/50 (22%)			15/50 (30%)		
Overall Incidence	Total	11/50 (22%)	Mean 22%	SD 0%	Total	15/50 (30%)	Mean 30% SD 0%
.....							
#All Organs:							
Malignant and Benign Tumors							
		42/50 (84%)			47/50 (94%)		
Overall Incidence	Total	42/50 (84%)	Mean 84%	SD 0%	Total	47/50 (94%)	Mean 94% SD 0%
.....							
#All Organs:							
Hemangioma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#All Organs:							
Hemangiosarcoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#All Organs:							
Hemangiosarcoma or Hemangioma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 58
 Report Date: 01/20/2018

	Male				Female			
#All Organs:								
Histiocytic Sarcoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#All Organs:								
Leukemia: Granulocytic								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#All Organs:								
Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#All Organs:								
Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#All Organs:								
Malignant Schwannoma								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
.....								
#All Organs:								
Mesothelioma: Benign, Malignant, NOS								
		1/50	(2%)			0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 59
 Report Date: 01/20/2018

		Male			Female		
#All Organs:							
Mesothelioma: Malignant							
		1/50 (2%)			0/50 (0%)		
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Adrenal Cortex:							
Adenoma							
		3/50 (6%)			3/50 (6%)		
Overall Incidence	Total	3/50 (6%)	Mean 6%	SD 0%	Total	3/50 (6%)	Mean 6% SD 0%
.....							
*Adrenal Cortex:							
Carcinoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Adrenal Medulla:							
Pheochromocytoma Benign							
		9/50 (18%)			3/50 (6%)		
Overall Incidence	Total	9/50 (18%)	Mean 18%	SD 0%	Total	3/50 (6%)	Mean 6% SD 0%
.....							
*Adrenal Medulla:							
Pheochromocytoma Complex							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Adrenal Medulla:							
Pheochromocytoma Malignant							
		3/50 (6%)			2/50 (4%)		
Overall Incidence	Total	3/50 (6%)	Mean 6%	SD 0%	Total	2/50 (4%)	Mean 4% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 60
 Report Date: 01/20/2018

	Male				Female			
*Adrenal Medulla:								
Pheochromocytoma: Benign, Complex, Malignant, NOS								
		12/50 (24%)			5/50 (10%)			
Overall Incidence	Total	12/50 (24%)	Mean 24%	SD 0%	Total	5/50 (10%)	Mean 10%	SD 0%
.....								
*Brain:								
Glioma Malignant								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Brain:								
Granular Cell Tumor Benign								
		2/50 (4%)			1/50 (2%)			
Overall Incidence	Total	2/50 (4%)	Mean 4%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
*Brain:								
Oligodendroglioma, Glioma, or Astrocytoma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Brain:								
Schwannoma Malignant								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Clitoral/Preputial Gland:								
Carcinoma								
		1/49 (2%)			0/48 (0%)			
Overall Incidence	Total	1/49 (2.04%)	Mean 2.04%	SD 0%	Total	0/48 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 61
 Report Date: 01/20/2018

	Male				Female			
*Clitoral/Preputial Gland: Carcinoma or Adenoma								
		1/49 (2%)			0/48 (0%)			
Overall Incidence	Total	1/49 (2.04%)	Mean 2.04%	SD 0%	Total	0/48 (0%)	Mean 0%	SD 0%
.....								
*Epididymis: Sarcoma								
		0/50 (0%)						
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%				
.....								
#Eye: Leiomyoma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Heart: Schwannoma Malignant								
		1/50 (2%)			0/49 (0%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/49 (0%)	Mean 0%	SD 0%
.....								
#Intestine Large: Colon/Rectum: Granular Cell Tumor Benign								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Intestine Large: Colon/Rectum: Leiomyoma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 62
 Report Date: 01/20/2018

	Male				Female			
#Intestine Small: Jejunum: Carcinoma								
		1/50 (2%)			0/50 (0%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Intestine Small: Jejunum: Leiomyosarcoma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Intestine Small: Site Unspecified: Carcinoma								
		1/50 (2%)			0/50 (0%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Intestine Small: Site Unspecified: Carcinoma or Adenoma								
		1/50 (2%)			0/50 (0%)			
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Intestine Small: Site Unspecified: Leiomyosarcoma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Islets, Pancreatic: Adenoma								
		3/50 (6%)			0/50 (0%)			
Overall Incidence	Total	3/50 (6%)	Mean 6%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 63
 Report Date: 01/20/2018

		Male			Female		
*Islets, Pancreatic:							
 Carcinoma							
		0/50	(0%)		1/50	(2%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50 (2%)
						Mean 2%	SD 0%
.....							
*Islets, Pancreatic:							
 Carcinoma or Adenoma							
		3/50	(6%)		1/50	(2%)	
Overall Incidence	Total	3/50	(6%)	Mean 6%	SD 0%	Total	1/50 (2%)
						Mean 2%	SD 0%
.....							
*Kidney: Pelvis and Transitional Epithelium:							
 Papilloma							
		1/50	(2%)		0/50	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
*Kidney: Renal Tubule:							
 Adenoma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
*Kidney: Renal Tubule:							
 Carcinoma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
*Kidney: Renal Tubule:							
 Carcinoma or Adenoma							
		0/50	(0%)		0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 64
 Report Date: 01/20/2018

		Male				Female			
*Kidney: Renal Tubule:									
Lipoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Kidney: Renal Tubule:									
Oncocytoma Benign									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Liver:									
Hepatocellular Adenoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Liver:									
Hepatocellular Carcinoma or Hepatocellular Adenoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Liver:									
Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma									
		0/50	(0%)			0/50	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
*Lung:									
Alveolar/Bronchiolar Adenoma									
		0/50	(0%)			0/49	(0%)		
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/49	(0%)	Mean 0% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 65
 Report Date: 01/20/2018

	Male				Female			
*Lung:								
Alveolar/Bronchiolar Carcinoma								
		1/50	(2%)			0/49	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/49 (0%)	Mean 0% SD 0%
.....								
*Lung:								
Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma								
		1/50	(2%)			0/49	(0%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/49 (0%)	Mean 0% SD 0%
.....								
*Lung:								
Sarcoma								
		0/50	(0%)			0/49	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/49 (0%)	Mean 0% SD 0%
.....								
#Lymph Node, Mesenteric:								
Hemangiosarcoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....								
#Mammary Gland:								
Adenolipoma								
		0/50	(0%)			1/50	(2%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....								
#Mammary Gland:								
Adenoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 66
 Report Date: 01/20/2018

	Male				Female			
#Mammary Gland: Carcinoma								
Overall Incidence	Total	2/50 (4%)	Mean 4%	SD 0%	Total	7/50 (14%)	Mean 14%	SD 0%
.....								
#Mammary Gland: Carcinoma or Adenoma								
Overall Incidence	Total	2/50 (4%)	Mean 4%	SD 0%	Total	7/50 (14%)	Mean 14%	SD 0%
.....								
#Mammary Gland: Fibroadenoma								
Overall Incidence	Total	2/50 (4%)	Mean 4%	SD 0%	Total	32/50 (64%)	Mean 64%	SD 0%
.....								
#Mammary Gland: Fibroma, Fibroadenoma or Adenoma								
Overall Incidence	Total	2/50 (4%)	Mean 4%	SD 0%	Total	32/50 (64%)	Mean 64%	SD 0%
.....								
#Mammary Gland: Fibroma, Fibroadenoma, Carcinoma, or Adenoma								
Overall Incidence	Total	3/50 (6%)	Mean 6%	SD 0%	Total	36/50 (72%)	Mean 72%	SD 0%
.....								
#Mammary Gland: Myoepithelioma								
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 67
 Report Date: 01/20/2018

	Male				Female			
#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Oral Mucosa: Squamous Cell Carcinoma								
		0/50 (0%)			0/50 (0%)			
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Ovary: Cystadenoma								
					0/50 (0%)			
Overall Incidence					Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Ovary: Granulosa Cell Tumor Benign								
					0/50 (0%)			
Overall Incidence					Total	0/50 (0%)	Mean 0%	SD 0%
.....								
*Ovary: Granulosa Cell Tumor Malignant								
					0/50 (0%)			
Overall Incidence					Total	0/50 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 68
 Report Date: 01/20/2018

Male					Female					
*Ovary:										
Granulosa Cell Tumor: Benign, Malignant, NOS										
					0/50	(0%)				
Overall Incidence					Total	0/50 (0%)	Mean	0%	SD	0%
.....										
*Ovary:										
Granulosa-Theca Tumor Benign										
					0/50	(0%)				
Overall Incidence					Total	0/50 (0%)	Mean	0%	SD	0%
.....										
*Ovary:										
Sertoli Cell Tumor Benign										
					0/50	(0%)				
Overall Incidence					Total	0/50 (0%)	Mean	0%	SD	0%
.....										
*Ovary:										
Thecoma Benign										
					0/50	(0%)				
Overall Incidence					Total	0/50 (0%)	Mean	0%	SD	0%
.....										
*Ovary:										
Tubulostromal Carcinoma										
					0/50	(0%)				
Overall Incidence					Total	0/50 (0%)	Mean	0%	SD	0%
.....										
*Pancreas:										
Adenoma										
					5/50	(10%)				
Overall Incidence					Total	5/50 (10%)	Mean	10%	SD	0%
					Total	0/50 (0%)	Mean	0%	SD	0%
.....										

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 69
 Report Date: 01/20/2018

		Male			Female		
*Pancreas:							
Carcinoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Pancreas:							
Carcinoma or Adenoma							
		5/50 (10%)			0/50 (0%)		
Overall Incidence	Total	5/50 (10%)	Mean 10%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Parathyroid Gland:							
Adenoma							
		0/49 (0%)			1/41 (2%)		
Overall Incidence	Total	0/49 (0%)	Mean 0%	SD 0%	Total	1/41 (2.44%)	Mean 2.44% SD 0%
.....							
*Pituitary Gland: Pars Distalis or Unspecified Site:							
Adenoma							
		14/50 (28%)			19/50 (38%)		
Overall Incidence	Total	14/50 (28%)	Mean 28%	SD 0%	Total	19/50 (38%)	Mean 38% SD 0%
.....							
*Pituitary Gland: Pars Distalis or Unspecified Site:							
Carcinoma							
		0/50 (0%)			0/50 (0%)		
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Pituitary Gland: Pars Distalis or Unspecified Site:							
Carcinoma or Adenoma							
		14/50 (28%)			19/50 (38%)		
Overall Incidence	Total	14/50 (28%)	Mean 28%	SD 0%	Total	19/50 (38%)	Mean 38% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 70
 Report Date: 01/20/2018

		Male			Female		
*Pituitary Gland: Pars Intermedia:							
Adenoma							
		2/50	(4%)		0/50	(0%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
.....							
*Pituitary Gland: Pars Intermedia:							
Carcinoma or Adenoma							
		2/50	(4%)		0/50	(0%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
.....							
*Prostate:							
Adenoma							
		0/50	(0%)				
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%		
.....							
*Prostate:							
Carcinoma or Adenoma							
		0/50	(0%)				
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%		
.....							
*Salivary Glands:							
Schwannoma Malignant							
		0/50	(0%)			0/49	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/49 (0%)
							Mean 0%
							SD 0%
.....							
#Skeletal Muscle:							
Liposarcoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
.....							

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 71
 Report Date: 01/20/2018

	Male				Female			
#Skeletal Muscle:								
Sarcoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Basal Cell Adenoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Basal Cell Adenoma or Basosquamous Tumor Benign								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Basal Cell Adenoma, Basosquamous Tumor Benign, or Trichoepithelioma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Basal Cell Carcinoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Basal Cell Carcinoma or Basosquamous Tumor (malignant or NOS)								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 72
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma								
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepithelioma								
Overall Incidence	Total	4/50 (8%)	Mean 8%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Fibroma								
Overall Incidence	Total	3/50 (6%)	Mean 6%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, Malignant Fibrous Histiocytoma, or Hemangiopericytoma								
Overall Incidence	Total	3/50 (6%)	Mean 6%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Malignant Fibrous Histiocytoma								
Overall Incidence	Total	3/50 (6%)	Mean 6%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
#Skin:								
Fibrosarcoma								
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 73
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Fibrosarcoma, Sarcoma, Myxosarcoma, or Malignant Fibrous Histiocytoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Hemangioma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Hemangiosarcoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Keratoacanthoma								
		2/50	(4%)			0/50	(0%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Lipoma								
		2/50	(4%)			0/50	(0%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Malignant Fibrous Histiocytoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 74
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Neurofibrosarcoma or Schwannoma (malignant or NOS)								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Neurofibrosarcoma, Neurofibroma, or Schwannoma (benign, malignant or NOS)								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Sarcoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Schwannoma Malignant								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Squamous Cell Carcinoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
#Skin:								
Squamous Cell Carcinoma, Basal Cell Carcinoma, Basosquamous Tumor (malignant or NOS), or Carcinoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 75
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Squamous Cell Papilloma								
		2/50	(4%)			0/50	(0%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....								
#Skin:								
Squamous Cell Papilloma or Papilloma								
		2/50	(4%)			0/50	(0%)	
Overall Incidence	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....								
#Skin:								
Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma								
		4/50	(8%)			0/50	(0%)	
Overall Incidence	Total	4/50	(8%)	Mean 8%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....								
#Skin:								
Squamous Cell Papilloma, Papilloma, or Keratoacanthoma								
		4/50	(8%)			0/50	(0%)	
Overall Incidence	Total	4/50	(8%)	Mean 8%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....								
#Skin: Sebaceous Gland:								
Adenoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....								
#Skin: Sebaceous Gland:								
Carcinoma or Adenoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 76
 Report Date: 01/20/2018

		Male			Female		
*Spleen:							
Hemangiosarcoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
#Stomach, Forestomach:							
Sarcoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
#Stomach, Forestomach:							
Squamous Cell Carcinoma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
#Stomach, Forestomach:							
Squamous Cell Carcinoma or Papilloma Squamous							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
#Stomach, Forestomach:							
Squamous Cell Papilloma							
		0/50	(0%)			0/50	(0%)
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
*Testis:							
Adenoma							
		1/50	(2%)				
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%		

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 77
 Report Date: 01/20/2018

		Male			Female		
*Thymus:							
Thymoma Benign							
		0/46	(0%)		0/49	(0%)	
Overall Incidence	Total	0/46	(0%)	Mean 0%	SD 0%	Total	0/49 (0%)
							Mean 0%
							SD 0%
.....							
*Thymus:							
Thymoma Malignant							
		0/46	(0%)		0/49	(0%)	
Overall Incidence	Total	0/46	(0%)	Mean 0%	SD 0%	Total	0/49 (0%)
							Mean 0%
							SD 0%
.....							
*Thymus:							
Thymoma: Benign, Malignant, NOS							
		0/46	(0%)		0/49	(0%)	
Overall Incidence	Total	0/46	(0%)	Mean 0%	SD 0%	Total	0/49 (0%)
							Mean 0%
							SD 0%
.....							
*Thyroid Gland: C-Cell:							
Adenoma							
		7/50	(14%)		5/50	(10%)	
Overall Incidence	Total	7/50	(14%)	Mean 14%	SD 0%	Total	5/50 (10%)
							Mean 10%
							SD 0%
.....							
*Thyroid Gland: C-Cell:							
Carcinoma							
		1/50	(2%)		1/50	(2%)	
Overall Incidence	Total	1/50	(2%)	Mean 2%	SD 0%	Total	1/50 (2%)
							Mean 2%
							SD 0%
.....							
*Thyroid Gland: C-Cell:							
Carcinoma or Adenoma							
		8/50	(16%)		6/50	(12%)	
Overall Incidence	Total	8/50	(16%)	Mean 16%	SD 0%	Total	6/50 (12%)
							Mean 12%
							SD 0%
.....							

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 78
 Report Date: 01/20/2018

		Male			Female		
*Thyroid Gland: Follicular Cell: Carcinoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
*Thyroid Gland: Follicular Cell: Carcinoma or Adenoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tissue NOS: Schwannoma Malignant							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tongue: Squamous Cell Carcinoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tongue: Squamous Cell Carcinoma or Papilloma Squamous							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
#Tooth: Odontoma							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 79
 Report Date: 01/20/2018

	Male				Female			
*Urinary Bladder:								
Leiomyosarcoma								
		0/50	(0%)			0/49	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/49	(0%)
.....								
#Uterus:								
Carcinoma								
						5/50	(10%)	
Overall Incidence						Total	5/50	(10%)
								Mean 10%
								SD 0%
.....								
#Uterus:								
Hemangiosarcoma								
						0/50	(0%)	
Overall Incidence						Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Uterus:								
Leiomyosarcoma								
						0/50	(0%)	
Overall Incidence						Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Uterus:								
Polyp Stromal								
						8/50	(16%)	
Overall Incidence						Total	8/50	(16%)
								Mean 16%
								SD 0%
.....								
#Uterus:								
Sarcoma Stromal								
						0/50	(0%)	
Overall Incidence						Total	0/50	(0%)
								Mean 0%
								SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: PERINATAL AND POSTNATAL
 Vehicle: FEED

Page: 80
 Report Date: 01/20/2018

	Male	Female
#Uterus:		
Sarcoma Stromal or Polyp Stromal		
Overall Incidence	Total 8/50 (16%)	Mean 16% SD 0%
#Uterus:		
Schwannoma Malignant		
Overall Incidence	Total 0/50 (0%)	Mean 0% SD 0%
#Uterus:		
Squamous Cell Carcinoma		
Overall Incidence	Total 0/50 (0%)	Mean 0% SD 0%
#Vagina:		
Granular Cell Tumor Benign		
Overall Incidence	Total 0/50 (0%)	Mean 0% SD 0%
#Vagina:		
Polyp		
Overall Incidence	Total 0/50 (0%)	Mean 0% SD 0%
#Vagina:		
Schwannoma Malignant		
Overall Incidence	Total 0/50 (0%)	Mean 0% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
Contract/Lab: All Laboratories
Species: RATS
Strain: Harlan Sprague-Dawley
Length of Study: CHRONIC

Toxicology Data Management System
Tumor Incidence for Selected Control Animal Groups
Route: PERINATAL AND POSTNATAL
Vehicle: FEED

Page: 81
Report Date: 01/20/2018

	Male				Female			
#Zymbal's Gland:								
Carcinoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%
.....								
#Zymbal's Gland:								
Carcinoma or Adenoma								
		0/50	(0%)			0/50	(0%)	
Overall Incidence	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
								Mean 0%
								SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
Contract/Lab: All Laboratories
Species: RATS
Strain: Harlan Sprague-Dawley
Length of Study: CHRONIC

Toxicology Data Management System
Tumor Incidence for Selected Control Animal Groups
Route: Whole Body Exposure
Vehicle: AIR

Page: 82
Report Date: 01/20/2018

Study Summary

Laboratory Name	Study Number	Study Start Date	Length of Study in Days	Number of Animals Total and (#/Cage)	Number Surviving and (Mean Life Span)	Maximum Mean Weekly Body Weight	Chemical
Male							
I. I. T. Research Institute	052010556	09/16/12	730	90(1)	25(642)	658.1	Radiofrequency Radiation
Female							
I. I. T. Research Institute	052010556	09/16/12	737	90(1)	48(659)	462.4	Radiofrequency Radiation

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 83
 Report Date: 01/20/2018

		Male			Female		
#All Organs:							
Benign Tumors							
		49/90 (54%)			82/90 (91%)		
Overall Incidence	Total	49/90 (54.44%)	Mean 54.44%	SD 0%	Total	82/90 (91.11%)	Mean 91.11% SD 0%
.....							
#All Organs:							
Malignant Tumors							
		24/90 (27%)			37/90 (41%)		
Overall Incidence	Total	24/90 (26.67%)	Mean 26.67%	SD 0%	Total	37/90 (41.11%)	Mean 41.11% SD 0%
.....							
#All Organs:							
Malignant and Benign Tumors							
		57/90 (63%)			89/90 (99%)		
Overall Incidence	Total	57/90 (63.33%)	Mean 63.33%	SD 0%	Total	89/90 (98.89%)	Mean 98.89% SD 0%
.....							
#All Organs:							
Hemangioma							
		0/90 (0%)			0/90 (0%)		
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%
.....							
#All Organs:							
Hemangiosarcoma							
		3/90 (3%)			3/90 (3%)		
Overall Incidence	Total	3/90 (3.33%)	Mean 3.33%	SD 0%	Total	3/90 (3.33%)	Mean 3.33% SD 0%
.....							
#All Organs:							
Hemangiosarcoma or Hemangioma							
		3/90 (3%)			3/90 (3%)		
Overall Incidence	Total	3/90 (3.33%)	Mean 3.33%	SD 0%	Total	3/90 (3.33%)	Mean 3.33% SD 0%
.....							

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

		Male			Female		
#All Organs:							
Histiocytic Sarcoma							
		0/90	(0%)		0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90 (0%)
							Mean 0%
							SD 0%
.....							
#All Organs:							
Leukemia: Granulocytic							
		0/90	(0%)		0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90 (0%)
							Mean 0%
							SD 0%
.....							
#All Organs:							
Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated							
		0/90	(0%)		0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90 (0%)
							Mean 0%
							SD 0%
.....							
#All Organs:							
Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type							
		2/90	(2%)		5/90	(6%)	
Overall Incidence	Total	2/90	(2.22%)	Mean 2.22%	SD 0%	Total	5/90 (5.56%)
							Mean 5.56%
							SD 0%
.....							
#All Organs:							
Malignant Schwannoma							
		3/90	(3%)		4/90	(4%)	
Overall Incidence	Total	3/90	(3.33%)	Mean 3.33%	SD 0%	Total	4/90 (4.44%)
							Mean 4.44%
							SD 0%
.....							
#All Organs:							
Mesothelioma: Benign, Malignant, NOS							
		2/90	(2%)		0/90	(0%)	
Overall Incidence	Total	2/90	(2.22%)	Mean 2.22%	SD 0%	Total	0/90 (0%)
							Mean 0%
							SD 0%
.....							

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 85
 Report Date: 01/20/2018

	Male				Female			
#All Organs:								
Mesothelioma: Malignant								
		2/90 (2%)				0/90 (0%)		
Overall Incidence	Total	2/90 (2.22%)	Mean 2.22%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%
.....								
*Adrenal Cortex:								
Adenoma								
		1/90 (1%)				1/90 (1%)		
Overall Incidence	Total	1/90 (1.11%)	Mean 1.11%	SD 0%	Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....								
*Adrenal Cortex:								
Carcinoma								
		0/90 (0%)				1/90 (1%)		
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....								
*Adrenal Medulla:								
Pheochromocytoma Benign								
		10/88 (11%)				1/86 (1%)		
Overall Incidence	Total	10/88 (11.36%)	Mean 11.36%	SD 0%	Total	1/86 (1.16%)	Mean 1.16%	SD 0%
.....								
*Adrenal Medulla:								
Pheochromocytoma Complex								
		1/88 (1%)				0/86 (0%)		
Overall Incidence	Total	1/88 (1.14%)	Mean 1.14%	SD 0%	Total	0/86 (0%)	Mean 0%	SD 0%
.....								
*Adrenal Medulla:								
Pheochromocytoma Malignant								
		1/88 (1%)				0/86 (0%)		
Overall Incidence	Total	1/88 (1.14%)	Mean 1.14%	SD 0%	Total	0/86 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 86
 Report Date: 01/20/2018

	Male				Female			
*Adrenal Medulla:								
Pheochromocytoma: Benign, Complex, Malignant, NOS								
		11/88 (13%)			1/86 (1%)			
Overall Incidence	Total	11/88 (12.5%)	Mean 12.5%	SD 0%	Total	1/86 (1.16%)	Mean 1.16%	SD 0%
.....								
*Brain:								
Glioma Malignant								
		0/90 (0%)			0/90 (0%)			
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%
.....								
*Brain:								
Granular Cell Tumor Benign								
		1/90 (1%)			1/90 (1%)			
Overall Incidence	Total	1/90 (1.11%)	Mean 1.11%	SD 0%	Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....								
*Brain:								
Oligodendroglioma, Glioma, or Astrocytoma								
		0/90 (0%)			0/90 (0%)			
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%
.....								
*Brain:								
Schwannoma Malignant								
		0/90 (0%)			0/90 (0%)			
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%
.....								
*Clitoral/Preputial Gland:								
Carcinoma								
		0/88 (0%)			0/87 (0%)			
Overall Incidence	Total	0/88 (0%)	Mean 0%	SD 0%	Total	0/87 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 87
 Report Date: 01/20/2018

		Male				Female			
*Clitoral/Preputial Gland:									
 Carcinoma or Adenoma									
		0/88	(0%)			0/87	(0%)		
Overall Incidence	Total	0/88	(0%)	Mean 0%	SD 0%	0/87	(0%)	Mean 0%	SD 0%
.....									
*Epididymis:									
 Sarcoma									
		0/90	(0%)						
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%				
.....									
#Eye:									
 Leiomyoma									
		0/90	(0%)			0/90	(0%)		
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	0/90	(0%)	Mean 0%	SD 0%
.....									
*Heart:									
 Schwannoma Malignant									
		0/90	(0%)			0/90	(0%)		
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	0/90	(0%)	Mean 0%	SD 0%
.....									
#Intestine Large: Colon/Rectum:									
 Granular Cell Tumor Benign									
		0/90	(0%)			1/90	(1%)		
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	1/90	(1.11%)	Mean 1.11%	SD 0%
.....									
#Intestine Large: Colon/Rectum:									
 Leiomyoma									
		0/90	(0%)			0/90	(0%)		
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	0/90	(0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 88
 Report Date: 01/20/2018

		Male			Female		
#Intestine Small: Jejunum: Carcinoma							
Overall Incidence	Total	2/90 (2%)	Mean 2.22%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%
.....							
#Intestine Small: Jejunum: Leiomyosarcoma							
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	1/90 (1.11%)	Mean 1.11% SD 0%
.....							
#Intestine Small: Site Unspecified: Carcinoma							
Overall Incidence	Total	2/90 (2.22%)	Mean 2.22%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%
.....							
#Intestine Small: Site Unspecified: Carcinoma or Adenoma							
Overall Incidence	Total	2/90 (2.22%)	Mean 2.22%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%
.....							
#Intestine Small: Site Unspecified: Leiomyosarcoma							
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	1/90 (1.11%)	Mean 1.11% SD 0%
.....							
*Islets, Pancreatic: Adenoma							
Overall Incidence	Total	5/90 (5.56%)	Mean 5.56%	SD 0%	Total	5/90 (5.56%)	Mean 5.56% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 89
 Report Date: 01/20/2018

	Male				Female			
*Islets, Pancreatic:								
Carcinoma								
		8/90 (9%)			2/90 (2%)			
Overall Incidence	Total	8/90 (8.89%)	Mean 8.89%	SD 0%	Total	2/90 (2.22%)	Mean 2.22%	SD 0%
.....								
*Islets, Pancreatic:								
Carcinoma or Adenoma								
		13/90 (14%)			7/90 (8%)			
Overall Incidence	Total	13/90 (14.44%)	Mean 14.44%	SD 0%	Total	7/90 (7.78%)	Mean 7.78%	SD 0%
.....								
*Kidney: Pelvis and Transitional Epithelium:								
Papilloma								
		0/90 (0%)			0/90 (0%)			
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%
.....								
*Kidney: Renal Tubule:								
Adenoma								
		3/90 (3%)			1/90 (1%)			
Overall Incidence	Total	3/90 (3.33%)	Mean 3.33%	SD 0%	Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....								
*Kidney: Renal Tubule:								
Carcinoma								
		1/90 (1%)			1/90 (1%)			
Overall Incidence	Total	1/90 (1.11%)	Mean 1.11%	SD 0%	Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....								
*Kidney: Renal Tubule:								
Carcinoma or Adenoma								
		3/90 (3%)			2/90 (2%)			
Overall Incidence	Total	3/90 (3.33%)	Mean 3.33%	SD 0%	Total	2/90 (2.22%)	Mean 2.22%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 90
 Report Date: 01/20/2018

		Male			Female		
*Kidney: Renal Tubule:							
Lipoma							
		1/90	(1%)			0/90	(0%)
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90 (0%)
							Mean 0%
							SD 0%
*Kidney: Renal Tubule:							
Oncocytoma Benign							
		1/90	(1%)			0/90	(0%)
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90 (0%)
							Mean 0%
							SD 0%
*Liver:							
Hepatocellular Adenoma							
		0/90	(0%)			7/90	(8%)
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	7/90 (7.78%)
							Mean 7.78%
							SD 0%
*Liver:							
Hepatocellular Carcinoma or Hepatocellular Adenoma							
		0/90	(0%)			7/90	(8%)
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	7/90 (7.78%)
							Mean 7.78%
							SD 0%
*Liver:							
Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma							
		0/90	(0%)			7/90	(8%)
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	7/90 (7.78%)
							Mean 7.78%
							SD 0%
*Lung:							
Alveolar/Bronchiolar Adenoma							
		1/90	(1%)			0/90	(0%)
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90 (0%)
							Mean 0%
							SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 91
 Report Date: 01/20/2018

	Male				Female			
*Lung:								
Alveolar/Bronchiolar Carcinoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
.....								
*Lung:								
Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma								
		1/90	(1%)			0/90	(0%)	
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90	(0%)
.....								
*Lung:								
Sarcoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
.....								
#Lymph Node, Mesenteric:								
Hemangiosarcoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
.....								
#Mammary Gland:								
Adenolipoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
.....								
#Mammary Gland:								
Adenoma								
		0/90	(0%)			8/90	(9%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	8/90	(8.89%)
.....								

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 92
 Report Date: 01/20/2018

	Male				Female			
#Mammary Gland: Carcinoma								
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	10/90 (11%)	Mean 11.11%	SD 0%
.....								
#Mammary Gland: Carcinoma or Adenoma								
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	16/90 (17.78%)	Mean 17.78%	SD 0%
.....								
#Mammary Gland: Fibroadenoma								
Overall Incidence	Total	2/90 (2.22%)	Mean 2.22%	SD 0%	Total	63/90 (70%)	Mean 70%	SD 0%
.....								
#Mammary Gland: Fibroma, Fibroadenoma or Adenoma								
Overall Incidence	Total	2/90 (2.22%)	Mean 2.22%	SD 0%	Total	64/90 (71.11%)	Mean 71.11%	SD 0%
.....								
#Mammary Gland: Fibroma, Fibroadenoma, Carcinoma, or Adenoma								
Overall Incidence	Total	2/90 (2.22%)	Mean 2.22%	SD 0%	Total	66/90 (73.33%)	Mean 73.33%	SD 0%
.....								
#Mammary Gland: Myoepithelioma								
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 93
 Report Date: 01/20/2018

	Male				Female			
#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma								
		0/90 (0%)			2/90 (2%)			
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	2/90 (2.22%)	Mean 2.22%	SD 0%
.....								
#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma								
		0/90 (0%)			2/90 (2%)			
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	2/90 (2.22%)	Mean 2.22%	SD 0%
.....								
#Oral Mucosa: Squamous Cell Carcinoma								
		0/90 (0%)			1/90 (1%)			
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....								
*Ovary: Cystadenoma								
					1/90 (1%)			
Overall Incidence					Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....								
*Ovary: Granulosa Cell Tumor Benign								
					1/90 (1%)			
Overall Incidence					Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....								
*Ovary: Granulosa Cell Tumor Malignant								
					2/90 (2%)			
Overall Incidence					Total	2/90 (2.22%)	Mean 2.22%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 94
 Report Date: 01/20/2018

				Male					Female				
*Ovary:													
Granulosa Cell Tumor: Benign, Malignant, NOS													
						3/90	(3%)						
Overall Incidence				Total	3/90	(3.33%)		Mean 3.33%	SD 0%				
.....													
*Ovary:													
Granulosa-Theca Tumor Benign													
						0/90	(0%)						
Overall Incidence				Total	0/90	(0%)		Mean 0%	SD 0%				
.....													
*Ovary:													
Sertoli Cell Tumor Benign													
						1/90	(1%)						
Overall Incidence				Total	1/90	(1.11%)		Mean 1.11%	SD 0%				
.....													
*Ovary:													
Thecoma Benign													
						0/90	(0%)						
Overall Incidence				Total	0/90	(0%)		Mean 0%	SD 0%				
.....													
*Ovary:													
Tubulostromal Carcinoma													
						0/90	(0%)						
Overall Incidence				Total	0/90	(0%)		Mean 0%	SD 0%				
.....													
*Pancreas:													
Adenoma													
						18/90	(20%)						
Overall Incidence				Total	18/90	(20%)	Mean 20%	SD 0%	Total	0/90	(0%)	Mean 0%	SD 0%
.....													

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 95
 Report Date: 01/20/2018

	Male				Female			
*Pancreas:								
Carcinoma								
		1/90 (1%)				0/90 (0%)		
Overall Incidence	Total	1/90 (1.11%)	Mean 1.11%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%
.....								
*Pancreas:								
Carcinoma or Adenoma								
		18/90 (20%)				0/90 (0%)		
Overall Incidence	Total	18/90 (20%)	Mean 20%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%
.....								
*Parathyroid Gland:								
Adenoma								
		1/83 (1%)				0/87 (0%)		
Overall Incidence	Total	1/83 (1.2%)	Mean 1.2%	SD 0%	Total	0/87 (0%)	Mean 0%	SD 0%
.....								
*Pituitary Gland: Pars Distalis or Unspecified Site:								
Adenoma								
		17/89 (19%)				43/90 (48%)		
Overall Incidence	Total	17/89 (19.1%)	Mean 19.1%	SD 0%	Total	43/90 (47.78%)	Mean 47.78%	SD 0%
.....								
*Pituitary Gland: Pars Distalis or Unspecified Site:								
Carcinoma								
		0/89 (0%)				1/90 (1%)		
Overall Incidence	Total	0/89 (0%)	Mean 0%	SD 0%	Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....								
*Pituitary Gland: Pars Distalis or Unspecified Site:								
Carcinoma or Adenoma								
		17/89 (19%)				44/90 (49%)		
Overall Incidence	Total	17/89 (19.1%)	Mean 19.1%	SD 0%	Total	44/90 (48.89%)	Mean 48.89%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 96
 Report Date: 01/20/2018

		Male			Female		
*Pituitary Gland: Pars Intermedia:							
Adenoma							
		0/89	(0%)		0/90	(0%)	
Overall Incidence	Total	0/89	(0%)	Mean 0%	SD 0%	Total	0/90 (0%)
						Mean 0%	SD 0%
*Pituitary Gland: Pars Intermedia:							
Carcinoma or Adenoma							
		0/89	(0%)		0/90	(0%)	
Overall Incidence	Total	0/89	(0%)	Mean 0%	SD 0%	Total	0/90 (0%)
						Mean 0%	SD 0%
*Prostate:							
Adenoma							
		2/90	(2%)				
Overall Incidence	Total	2/90	(2.22%)	Mean 2.22%	SD 0%		
*Prostate:							
Carcinoma or Adenoma							
		2/90	(2%)				
Overall Incidence	Total	2/90	(2.22%)	Mean 2.22%	SD 0%		
*Salivary Glands:							
Schwannoma Malignant							
		0/90	(0%)		0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90 (0%)
						Mean 0%	SD 0%
#Skeletal Muscle:							
Liposarcoma							
		0/90	(0%)		0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90 (0%)
						Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 97
 Report Date: 01/20/2018

	Male				Female			
#Skeletal Muscle:								
Sarcoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Basal Cell Adenoma								
		1/90	(1%)			0/90	(0%)	
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Basal Cell Adenoma or Basosquamous Tumor Benign								
		1/90	(1%)			0/90	(0%)	
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Basal Cell Adenoma, Basosquamous Tumor Benign, or Trichoepithelioma								
		1/90	(1%)			0/90	(0%)	
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Basal Cell Carcinoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Basal Cell Carcinoma or Basosquamous Tumor (malignant or NOS)								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 98
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma								
Overall Incidence	Total	1/90 (1%)	Mean 1.11%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%

#Skin:								
Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepithelioma								
Overall Incidence	Total	8/90 (8.89%)	Mean 8.89%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%

#Skin:								
Fibroma								
Overall Incidence	Total	2/90 (2.22%)	Mean 2.22%	SD 0%	Total	2/90 (2.22%)	Mean 2.22%	SD 0%

#Skin:								
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, Malignant Fibrous Histiocytoma, or Hemangiopericytoma								
Overall Incidence	Total	5/90 (5.56%)	Mean 5.56%	SD 0%	Total	5/90 (5.56%)	Mean 5.56%	SD 0%

#Skin:								
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Malignant Fibrous Histiocytoma								
Overall Incidence	Total	5/90 (5.56%)	Mean 5.56%	SD 0%	Total	5/90 (5.56%)	Mean 5.56%	SD 0%

#Skin:								
Fibrosarcoma								
Overall Incidence	Total	1/90 (1.11%)	Mean 1.11%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 99
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Fibrosarcoma, Sarcoma, Myxosarcoma, or Malignant Fibrous Histiocytoma								
		3/90	(3%)			3/90	(3%)	
Overall Incidence	Total	3/90	(3.33%)	Mean 3.33%	SD 0%	Total	3/90	(3.33%)
								Mean 3.33%
								SD 0%
.....								
#Skin:								
Hemangioma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Hemangiosarcoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Keratoacanthoma								
		5/90	(6%)			0/90	(0%)	
Overall Incidence	Total	5/90	(5.56%)	Mean 5.56%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Lipoma								
		2/90	(2%)			0/90	(0%)	
Overall Incidence	Total	2/90	(2.22%)	Mean 2.22%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%
.....								
#Skin:								
Malignant Fibrous Histiocytoma								
		0/90	(0%)			1/90	(1%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	1/90	(1.11%)
								Mean 1.11%
								SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 100
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Neurofibrosarcoma or Schwannoma (malignant or NOS)								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
.....								
#Skin:								
Neurofibrosarcoma, Neurofibroma, or Schwannoma (benign, malignant or NOS)								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
.....								
#Skin:								
Sarcoma								
		2/90	(2%)			2/90	(2%)	
Overall Incidence	Total	2/90	(2.22%)	Mean 2.22%	SD 0%	Total	2/90	(2.22%)
.....								
#Skin:								
Schwannoma Malignant								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
.....								
#Skin:								
Squamous Cell Carcinoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
.....								
#Skin:								
Squamous Cell Carcinoma, Basal Cell Carcinoma, Basosquamous Tumor (malignant or NOS), or Carcinoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 101
 Report Date: 01/20/2018

	Male				Female			
#Skin:								
Squamous Cell Papilloma								
		2/90	(2%)			0/90	(0%)	
Overall Incidence	Total	2/90	(2.22%)	Mean 2.22%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%
.....								
#Skin:								
Squamous Cell Papilloma or Papilloma								
		2/90	(2%)			0/90	(0%)	
Overall Incidence	Total	2/90	(2.22%)	Mean 2.22%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%
.....								
#Skin:								
Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma								
		7/90	(8%)			0/90	(0%)	
Overall Incidence	Total	7/90	(7.78%)	Mean 7.78%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%
.....								
#Skin:								
Squamous Cell Papilloma, Papilloma, or Keratoacanthoma								
		7/90	(8%)			0/90	(0%)	
Overall Incidence	Total	7/90	(7.78%)	Mean 7.78%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%
.....								
#Skin: Sebaceous Gland:								
Adenoma								
		1/90	(1%)			0/90	(0%)	
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%
.....								
#Skin: Sebaceous Gland:								
Carcinoma or Adenoma								
		1/90	(1%)			0/90	(0%)	
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%

*: Denominator is number of animals with tissues examined microscopically
 #: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 102
 Report Date: 01/20/2018

	Male				Female				
*Spleen:									
Hemangiosarcoma									
		3/90	(3%)			1/90	(1%)		
Overall Incidence	Total	3/90	(3.33%)	Mean 3.33%	SD 0%	Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....									
#Stomach, Forestomach:									
Sarcoma									
		0/90	(0%)			1/90	(1%)		
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....									
#Stomach, Forestomach:									
Squamous Cell Carcinoma									
		0/90	(0%)			0/90	(0%)		
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%
.....									
#Stomach, Forestomach:									
Squamous Cell Carcinoma or Papilloma Squamous									
		1/90	(1%)			0/90	(0%)		
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%
.....									
#Stomach, Forestomach:									
Squamous Cell Papilloma									
		1/90	(1%)			0/90	(0%)		
Overall Incidence	Total	1/90	(1.11%)	Mean 1.11%	SD 0%	Total	0/90 (0%)	Mean 0%	SD 0%
.....									
*Testis:									
Adenoma									
		2/90	(2%)						
Overall Incidence	Total	2/90	(2.22%)	Mean 2.22%	SD 0%				

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 103
 Report Date: 01/20/2018

		Male			Female		
*Thymus:							
Thymoma Benign							
		0/88	(0%)		1/87	(1%)	
Overall Incidence	Total	0/88	(0%)	Mean 0%	SD 0%	Total	1/87 (1.15%)
						Mean	1.15%
						SD	0%
.....							
*Thymus:							
Thymoma Malignant							
		0/88	(0%)		1/87	(1%)	
Overall Incidence	Total	0/88	(0%)	Mean 0%	SD 0%	Total	1/87 (1.15%)
						Mean	1.15%
						SD	0%
.....							
*Thymus:							
Thymoma: Benign, Malignant, NOS							
		0/88	(0%)		2/87	(2%)	
Overall Incidence	Total	0/88	(0%)	Mean 0%	SD 0%	Total	2/87 (2.3%)
						Mean	2.3%
						SD	0%
.....							
*Thyroid Gland: C-Cell:							
Adenoma							
		8/89	(9%)		6/90	(7%)	
Overall Incidence	Total	8/89	(8.99%)	Mean 8.99%	SD 0%	Total	6/90 (6.67%)
						Mean	6.67%
						SD	0%
.....							
*Thyroid Gland: C-Cell:							
Carcinoma							
		2/89	(2%)		0/90	(0%)	
Overall Incidence	Total	2/89	(2.25%)	Mean 2.25%	SD 0%	Total	0/90 (0%)
						Mean	0%
						SD	0%
.....							
*Thyroid Gland: C-Cell:							
Carcinoma or Adenoma							
		10/89	(11%)		6/90	(7%)	
Overall Incidence	Total	10/89	(11.24%)	Mean 11.24%	SD 0%	Total	6/90 (6.67%)
						Mean	6.67%
						SD	0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 104
 Report Date: 01/20/2018

		Male			Female		
*Thyroid Gland: Follicular Cell: Carcinoma							
Overall Incidence	Total	0/89 (0%)	Mean 0%	SD 0%	Total	1/90 (1%)	Mean 1.11% SD 0%
.....							
*Thyroid Gland: Follicular Cell: Carcinoma or Adenoma							
Overall Incidence	Total	0/89 (0%)	Mean 0%	SD 0%	Total	1/90 (1%)	Mean 1.11% SD 0%
.....							
#Tissue NOS: Schwannoma Malignant							
Overall Incidence	Total	1/90 (1%)	Mean 1.11%	SD 0%	Total	1/90 (1%)	Mean 1.11% SD 0%
.....							
#Tongue: Squamous Cell Carcinoma							
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	1/90 (1%)	Mean 1.11% SD 0%
.....							
#Tongue: Squamous Cell Carcinoma or Papilloma Squamous							
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	1/90 (1%)	Mean 1.11% SD 0%
.....							
#Tooth: Odontoma							
Overall Incidence	Total	0/90 (0%)	Mean 0%	SD 0%	Total	0/90 (0%)	Mean 0% SD 0%
.....							

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 105
 Report Date: 01/20/2018

	Male				Female				
*Urinary Bladder:									
Leiomyosarcoma									
		0/89	(0%)			1/88	(1%)		
Overall Incidence	Total	0/89	(0%)	Mean 0%	SD 0%	Total	1/88 (1.14%)	Mean 1.14%	SD 0%
.....									
#Uterus:									
Carcinoma									
						3/90	(3%)		
Overall Incidence						Total	3/90 (3.33%)	Mean 3.33%	SD 0%
.....									
#Uterus:									
Hemangiosarcoma									
						2/90	(2%)		
Overall Incidence						Total	2/90 (2.22%)	Mean 2.22%	SD 0%
.....									
#Uterus:									
Leiomyosarcoma									
						1/90	(1%)		
Overall Incidence						Total	1/90 (1.11%)	Mean 1.11%	SD 0%
.....									
#Uterus:									
Polyp Stromal									
						16/90	(18%)		
Overall Incidence						Total	16/90 (17.78%)	Mean 17.78%	SD 0%
.....									
#Uterus:									
Sarcoma Stromal									
						0/90	(0%)		
Overall Incidence						Total	0/90 (0%)	Mean 0%	SD 0%
.....									

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
 Contract/Lab: All Laboratories
 Species: RATS
 Strain: Harlan Sprague-Dawley
 Length of Study: CHRONIC

Toxicology Data Management System
 Tumor Incidence for Selected Control Animal Groups
 Route: Whole Body Exposure
 Vehicle: AIR

Page: 106
 Report Date: 01/20/2018

	Male	Female
#Uterus:		
Sarcoma Stromal or Polyp Stromal		
Overall Incidence	Total 16/90 (17.78%)	Mean 17.78% SD 0%
.....		
#Uterus:		
Schwannoma Malignant		
Overall Incidence	Total 2/90 (2.22%)	Mean 2.22% SD 0%
.....		
#Uterus:		
Squamous Cell Carcinoma		
Overall Incidence	Total 0/90 (0%)	Mean 0% SD 0%
.....		
#Vagina:		
Granular Cell Tumor Benign		
Overall Incidence	Total 0/90 (0%)	Mean 0% SD 0%
.....		
#Vagina:		
Polyp		
Overall Incidence	Total 0/90 (0%)	Mean 0% SD 0%
.....		
#Vagina:		
Schwannoma Malignant		
Overall Incidence	Total 1/90 (1.11%)	Mean 1.11% SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Nov2017
Contract/Lab: All Laboratories
Species: RATS
Strain: Harlan Sprague-Dawley
Length of Study: CHRONIC

Toxicology Data Management System
Tumor Incidence for Selected Control Animal Groups
Route: Whole Body Exposure
Vehicle: AIR

Page: 107
Report Date: 01/20/2018

	Male				Female			
#Zymbal's Gland:								
Carcinoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%
.....								
#Zymbal's Gland:								
Carcinoma or Adenoma								
		0/90	(0%)			0/90	(0%)	
Overall Incidence	Total	0/90	(0%)	Mean 0%	SD 0%	Total	0/90	(0%)
								Mean 0%
								SD 0%

*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied